

FILE Medical
DD/S 72-3302

22 AUG 1972

MEMORANDUM FOR: Director of Medical Services

SUBJECT : Remote Terminal Device for Psychological Services Staff

REFERENCE : Memo dtd 16 Aug 72 to Information Processing Coordinator, Support Directorate, fm D/MS, re same subject

1. Your request to install a commercially leased remote terminal device as described in the Phase I portion of your proposal is approved subject to your receipt of a security approval from the Office of Security.

2. Before proceeding with Phase II we should have a thorough review and evaluation of Phase I; the successes, failures, problems, solutions, advantages, gains, etc. A proposal to proceed with Phase II should be submitted for separate approval at that time. The proposal should have the concurrence of the Directors of Communications, Security, Computer Services, and the Director of the SIPS Task Force.

3. I have tasked the Director of the SIPS Task Force with coordinating the interest Support components in the Chamber of Commerce Building have expressed in using remote terminals. The number and variety of these interests, in addition to the communications and security implications, suggest that a Data Management Center in the Chamber of Commerce Building may be the best way to satisfy overall Directorate requirements.

/s/ Robert S. Wattles
 Robert S. Wattles
 Assistant Deputy Director
 for Support

cc: D/SIPS w/cy of ref
 Director of Security

A-EO-DD/S:RHW:es (22 Aug 72)
 Distribution:

Orig & 1 - Adse

1 - D/SIPS w/cy of ref (DD/S 72-3233)

1 - D/Sec

~~1~~ - DD/S subject w/orig of ref
 1 - DD/S chrono

TRANSMITTAL SLIP

DATE

22 August 1972

TO: Mr. Wattles

ROOM NO. | BUILDING

REMARKS:

Recommend your signature.



RHW

FROM:

ROOM NO. | BUILDING | EXTENSION

FORM NO. 241

1 FEB 55

REPLACES FORM 36-8
WHICH MAY BE USED.

(47)

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STAT

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R.A.W.
believe that we should finish
with Security review
before ADDS approvals.

approval should provide
for OMS funding with
no add-on. approval
should be granted for
specific period of time
and results evaluated
before perpetuating.

JMP

PSW:

1. we can wait a few days for
security evaluation
2. We can approve subject to satisfactory
security report.
3. We can approve relying on statement
in presentation that Phase 1 has no
security implications.

*Suggest #1 go forward because of
reasonable assurance that S is correct.*

Abe

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 INTERNAL
 USE ONLY CONFIDENTIAL SECRET

ROUTING AND RECORD SHEET

SUBJECT: (Optional)

Remote Terminal Device for Psychological Services Staff, OMS

FROM: Director of Medical Services
1D-4061 Headquarters

EXTENSION

NO.

25X1

DATE

10

TO: (Officer designation, room number, and building)

DATE

RECEIVED

FORWARDED

OFFICER'S INITIALS

COMMENTS (Number each comment to show from whom to whom. Draw a line across column after each comment.)

1. Information Processing
Coordinator, Support
Directorate

2. 7D-18 Headquarters

3.

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72.3233

MEMORANDUM FOR: Information Processing Coordinator,
Support Directorate

SUBJECT : Remote Terminal Device for Psychological
Services Staff, Office of Medical
Services

The attached memorandum of 10 July 1972 from
Chief, Psychological Services Staff is forwarded pur-
suant to your review of his earlier memorandum on the
same subject. In the interest of saving time, the
Director of Security is this date being requested to
review the security aspects of the proposal; copy of
our memorandum requesting this is also attached.



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JOHN R. TIETJEN, M.D.
Director of Medical Services

Attachments

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ROUTING AND RECORD SHEET

SUBJECT: (Optional)

Request for Remote Terminal Device for PSS

FROM:	C/PSS/OMS 706 CofC	EXTENSION	NO.	STAT
			DATE	
TO: (Officer designation, room number, and building)	DATE	OFFICER'S INITIALS	COMMENTS (Number each comment to show from whom to whom. Draw a line across column after each comment.)	
1. DMS 1D4060 Headquarters	13 JUL 1972	/		
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
12.				
13.		/		
14.				
15.				

10 July 1972

MEMORANDUM FOR: Director of Medical Services

SUBJECT : Request for Remote Terminal Device for
Psychological Services Staff

REFERENCE : Memo to DMS, same subject, 10 May 1971

1. In the referenced memorandum you approved our request for commercially leased computer services, including a Remote Terminal Device (RTD) on a monthly rental basis, with a total approximate cost of \$430 per month. The request was based on projected use of these services to greatly enhance the efficiency of present Staff operations and permit the development of substantially new approaches to test use, assessment, and research problems.

2. In a detailed commentary on the request, the Information Processing Coordinator for the Support Directorate asked for an elaboration on several aspects of projected use, called for more precise estimates of expected gains, recommended coordination with various offices planning what seemed to be similar uses, and emphasized the importance of long-range projection of needs and purposes.

3. In response to this commentary, we have substantially reworked the earlier paper, spelling out more precisely the expected immediate uses and payoffs, and distinguishing these from the longer-range projections which, while holding high promise, are more properly cast in a Research and Development (R&D) mode. Since discussion of the many points raised results in a lengthy document, we have grouped the material pertaining to immediate use of the RTD under the Tab "Phase 1", and have labelled the projections for R&D follow-on as "Phase 2".

4. Phase 1, which is cast in a time frame of 12 to 18 months, is capable of full realization with the leased services requested, and stands on its own merits, independent of the implementation of Phase 2. Work necessary for the implementation of Phase 1 has proceeded since the earlier paper was submitted, and we are prepared to initiate Phase 1 immediately upon acquisition of the RTD.

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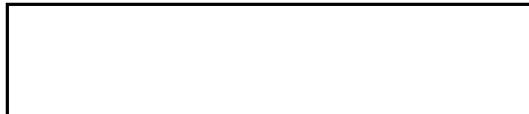
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SUBJECT: Request for Remote Terminal Device for
Psychological Services Staff

5. Phase 2, on the other hand, is clearly dependent upon the successful implementation of Phase 1. It also envisions the acquisition of an RTD with a secure communications link between PSS quarters in the Chamber of Commerce Building and the Agency's central computer facilities in the Headquarters Building--a requirement involving other considerations, as discussed under Tab 2.

6. The costs for the leased services under Phase 1 remain essentially the same as before (see Tab 3).

7. In elaboration of this proposal, we have followed the draft procedures for requesting an RTD developed by the Technical Facilities Committee, and believe we have coordinated planning fully with the appropriate offices in the DDS and OCS. At the same time, we have continued to develop our own Staff capability to take maximum advantage of the potential which an RTD will open up. We are anxious to move ahead.



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Chief, Psychological Services Staff
Office of Medical Services

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TAB 1

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PHASE 1

1. Background

In advising management regarding employment, placement, upgrading and retraining decision, PSS processes approximately 2300/4-hour test-battery results per year for applicants to the Agency as well as approximately 400/8-hour test-battery results per year for employees of the Agency. Out of the 2300 applicants reviewed, some 800 per year eventually complete the second 4-hour portion of the test battery and these results are also processed through PSS. (It should be pointed out that the particular testing described is the Professional Test Battery, utilized only with applicants for professional level positions within the Agency and/or for Agency employees either within or being considered for professional level positions.)

Integration of the various elements of the battery (figures following are for the full 8-hour battery) including 8 ability measures, a measure of foreign language aptitude (applicants only), 7 (male) or 6 (female) self-report personality measures, 15 work attitude measures and approximately 15 occupational interest measures, is currently accomplished by the human element, i.e., the mind of the psychologist. Even without considering these elements against the background of the nearly 145 self-report biographic items or the personalized Essay produced by the subject, there exist over 160,000 possible distinct and disparate score patterns. The cost of human integration of the battery elements by a PSS psychologist at this time amounts to approximately 22% of the total cost of both testing the person as well as processing his/her results for integration by the psychologist.

2. RTD Application

When there exists a mathematical model relating test score patterns to interpretive comments (e.g., in 90% of test profiles where verbal skills scores exceed quantitative skills scores by more than 3 profile-score units, the psychologist writes: "The relative superiority of verbal skills indicates this individual will be more productive in tasks focussed upon the written word/abstract materials than in tasks focussed upon quantitative/mathematical materials.") then the human element, the psychologist, is both an expensive and frankly unnecessary part of the interpretive process.

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The RTD in Phase 1 is to be utilized in duplicating the mathematical model employed by the psychologist in producing test interpretations. This model would direct integration of individual test results through the CPU and key an Output Device to produce an interpretive report identical with that now generated by the psychologist.

3. Utility

From the standpoint of the test interpretation process, an increase in specificity of reporting can be anticipated. Given the large number of possible score patterns, the capacity of a computer to "recognize" each clearly far outstrips the capacity of the psychologist. Of even greater significance is the reliability of the computer in consistently "recognizing" a given score pattern as well as in producing the same interpretive comments on each occasion that a specific score pattern occurs. (Such consistency in reporting is a necessary underpinning of the type of research activities described under Phase 2, Section 1, of this memorandum.)

From the standpoint of manpower, management practices and money, the utility can be described in very concrete terms. The costing for psychologist integration of data from the 8-hour test battery is estimated at approximately \$9.62 per subject (based on 75% of a man-year activities of a staff psychologist in the PSS Assessment Branch average grade of above GS-12/1 but less than GS-13/1). Current estimates reflect that with clerical assistance for inputting scores (GS-4) approximately 5 reports per hour can be generated for a total cost (human and computer) of \$25.49 or a "per report" cost of \$5.10 (a savings of 46% in costing and a five- to six-fold increase in the overall efficiency of the interpretive/reporting system).

4. Projections

The "model-building" stage of Phase 1 can best be handled by the use of current manpower resources within PSS (1 Research and 2 Assessment psychologists have completed Agency-sponsored training in mastering APL programming language). A previous unsuccessful attempt to develop a computer-based test-reporting system has underlined the value of reliance upon psychologists who are able to program rather than dependence upon a programmer who must be tutored in tests and measurement theory. Development of an operational program (though not completely refined program) would require approximately 90 days full-time work by two Ph.D.-level psychologists. Refinement of the program (accumulating sufficient data to permit random rather than routine spot-checking of reports produced) will require approximately another 12 to 18 months.

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Since throughout the "model-building" stage of Phase 1, no identification of subjects tested is necessary nor is it necessary to encode any statements referencing Agency functions or structure, no compromise of sensitive information is possible. Use of a commercially available service (an RTD with telephone coupler) which employs APL language appears the most expeditious means for completing the "model-building" stage. By arrangement with a commercial service, it is possible to obtain copies of the completed program which readily interface with the Agency system.

5. Estimate of Commercial-leased RTD Costs

In securing a commercially-leased RTD, no purchase of equipment is required. Rental fees for an RTD (plus telephone coupler) are approximately \$128.00 per month. (Rental includes maintenance and/or replacement of the RTD if required.) The monthly rental fee also includes consultation services of programming experts of the leasor company. In support of the "model-building" stage, the amount of disk storage necessary can be secured at a monthly rate of \$7.00.

Based upon earlier experience with similar model-building efforts, it is estimated that monthly expenditures for Connect Time and CPU Time will amount to approximately \$300.00 (Connect Time @ \$8.00 per hour; CPU Time @ \$0.40 per second).

The total monthly expenditure of \$435.00 is estimated to allow for approximately 30 hours RTD usage per month.

(cf. TAB 3 for itemized listing of costs and identification of source for cost estimates.)

6. Final Stages

The final goal of Phase 1 is transfer of the finished "model" to the Agency's computer system, linking this model to the current PSS test-scoring/profiling program. Review of this proposal with [redacted] of OCS as well as [redacted] (the PSS point of contact within OCS on problems involving the PSS test-scoring/profiling program) indicates no critical problems are anticipated in accomplishing the link-up.

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7. Comparability

A search for exemplars of the system described above indicated that automated test-reporting programs have typically focussed upon single test devices of the multi-scale variety. In addition, these test devices have traditionally been of the psychopathology screening type. At present, the Syndrome Approximation Test (developed by [redacted] of the OMS Psychiatric Staff) is processed in a test-scoring/profiling/reporting mode akin to that proposed for the PSS test-reporting program. While the "brick-and-mortar" (the capacities of the programming language employed) used in developing the Psychiatric Staff's test-reporting program does not differ from that to be used in the proposed PSS system, the "blue-prints" are inherently different. As opposed to a screening device employed as an interview adjunct (the Psychiatric Staff "blue-print") the PSS system will incorporate ability measures, self-description, work attitudes and occupational interests in depicting both the individual subject's greatest assets for Agency employment as well as in describing the work environment considered optimal for capitalizing on these assets. Thus the two systems serve very different purposes, corresponding to the differences in function between the two Staffs. 25X1

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TAB 2

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PHASE 2

The second phase of the PSS proposed RTD usage includes research and development oriented in two general directions: (a) the generation and improvement of computer-supported CIA employee/applicant assessment techniques, and (b) the development and testing of working models designed to predict the probability of occurrence of specific types of human behavior.

1. Projections for Assessment-Related Usage

The remote terminal would allow continuous up-dating of test norms for both applicants and employees. Under the present system norms require periodic manual re-computation in order to keep test comparison standards current--a process which, depending to some extent upon the instrument to be re-standardized and the amount of new data to be incorporated, may take one Research psychologist (average grade greater than GS-12/1 but less than GS-14/1) working full time as much as eight weeks to complete. With the proposed remote terminal, scores would be entered for each new subject tested and those scores would be automatically and instantaneously used to re-compute the existing data base norms. This would serve to ensure that norms are always current and would completely eliminate the periodic manual re-standardization required under the present system.

As another example, with the establishment of a full random access capability, the proposed terminal would make entirely feasible a kind of "obverse analysis" i.e., instead of inputting subjects' test scores, specific and highly specialized job requirements are inputted and the computer addressed to print out at least three items: (1) an "ideal" personality profile of a hypothetical individual "perfectly" suited to such an assignment; (2) a list of current employees whose prior test and interview data indicate potential suitability for the assignment; and (3) a list of current Agency applicants potentially suitable for the assignment. The utility of such a system can hardly be overstated. Such precision in personnel selection would contribute significantly to a greater probability of success in placement decisions.

The terminal would also provide a much needed means by which present selection criteria could be rapidly and empirically validated. For example, employee names could be solicited from experienced office supervisors delineating the 10 to 20 "best" men under their supervision in a specific position. Assessment

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protocols of selected "best" employees would be analyzed for "profile patterning" through the remote terminal. This technique would, in addition to providing a check on manifest selection criteria, permit identification of other critical but heretofore unidentified criteria.

Finally, the remote terminal would make possible the automation of (and hence standardization of) the assessment interview situation which would serve the critical function of reducing a number of otherwise prevalent sources of error. The complex nature of the two-person interaction would thus vastly be simplified. If, for example, the subject does tend to be anxious about telling someone else about his personal life and feelings, the computer terminal, being a neutral stimulus, would allay such anxieties. Moreover, errors arising as a result of interviewer differences, peculiarities of interviewing style, methods of recording, and from extrapolations made beyond observed data should be entirely eliminated by the introduction of a remote terminal as the "interviewer". Finally, since the computer will become a constant rather than a variable of the interview situation, it can be expected to make important contributions toward the standardization and replication of the interview.

The technical aspects of using the remote terminal in the interview situation would reduce to storing in the computer's memory a set of questions relevant for such interviewing, and writing a program of instructions to enable it to ask these questions and to receive and act upon the answers provided by the subject on the terminal. Although the technical problems of generating a working version of the program would be considerable, these details must play a secondary role to the potential advantages of this procedure.

2. Projections for Non-Assessment Usage

In addition to providing support for the assessment function of the Psychological Services Staff, the proposed terminal would also permit the establishment of a basic and applied research program in the active and potentially fruitful area of model building to employ data beyond the range of current PSS testing/assessment techniques. As a non-computational as well as a computational information processor, the computer, via the remote terminal, would play a crucial role in developing and testing predictive models of behavior. The application of such theoretical models to areas resistant to precise quantification such as in the prediction of complex social behaviors, presents an intricate problem--one that simply could not be solved without on-line computer support.

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The value of developing such a predictive model should require no explication beyond the suggestion that accurate foreknowledge of critical behaviors (such as defection, etc.) would be indispensable to the Agency.

3. Considerations

As indicated under the description of Phase 1 (Section 5), all activities included under this project can be accomplished through use of a commercially-leased RTD. No compromise of sensitive information is involved. Progressing into Phase 2 projects, it is clear that data of a sensitive nature will be treated. Hence, an RTD with a secure communications link accessing the Agency's system will be required.

As early as November, 1970, the projected requirement for such an RTD was discussed with a joint committee composed of OC, OCS and OS representatives under the chairmanship of [redacted] From that discussion, outlining the safeguards (and consequent costs) required for protecting an RTD link to the Agency's system, it became clear that maximum use of an Agency RTD ought to be guaranteed beforehand.

Subsequent survey of Agency elements (other than PSS) located within the C of C Building identified an important number of potential users for an Agency RTD. Perhaps the most obvious user is the Control Division, Office of Personnel. The manipulation and collation of personnel data carried out by the Division's Statistical Reporting Branch requires continuing direct computer support which now, is available only within the confines of the Headquarters building. The Office of Training's Language School, pursuant to the research support of its test development program, can also derive benefits from an Agency RTD placed within the C of C Building. Ready storage and rapid retrieval of training records (Admissions, Information and Records Branch, Instructional Support Staff, OTR) represents a third additional utility and potential user of an Agency RTD.

Thus, the request for placement of an RTD (accessing the Agency system) within the C of C Building, while arising from current PSS development needs, also can be projected against a network of identified needs and potential users outside of PSS but located within the C of C Building.

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TAB 3

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ESTIMATE OF COMMERCIAL-LEASED RTD COSTS*

Rental of RTD and Telephone Coupler \$128.00 Per Mo.

Connect Time \$8.00

Processor Usage (CPU Time) \$0.40

Based upon previous experience with this system, it is estimated that 1 hour of Connect Time uses approximately 5 secs. of CPU Time.

One hour of service while the program is being written will cost approximately \$8.00 + (5 x \$0.40) = \$10.00/hr.

Thirty hours of usage while the program
is being written (@\$10.00/hr.) \$300.00 Per Mo.

Disk Storage (50,400 characters @ \$1.00
per 7,200 characters) \$ 7.00 Per Mo.

Total Cost per month (while program
is being written)¹ \$435.00 Per Mo.

1 (With completion of the first 90 days of program development, the ratio of CPU Time to Connect Time may be expected to reduce. For cost estimating, however, the highest expected ratio has been employed.)

Note: The rate of 30 hours usage per month permits over six hours of usage per week or over 1 hour of usage per day.

- * These costs are based upon current prices (February 1972) quoted by APL Services Incorporated of Trenton, New Jersey, marketers for The Computer Company of Richmond, Virginia. Rental (as opposed to purchase) of the terminal and coupler is proposed since use of the commercial-leased service over approximately 18 months does not appear to justify expenditure in the amount of \$4,300 - \$4,500 for outright purchase of the terminal.

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16 AUG 1972

MEMORANDUM FOR: Director of Security

SUBJECT : Request for Office of Security Review of
Psychological Services Staff Data to be
Used in Proposed Commercial-Leased
Computer Service Project

1. The Psychological Services Staff of the Office of Medical Services has proposed a computer-supported project which requires the letting of a contract for an extra-Agency, commercial-leased computer service. Inasmuch as such service involves transmission of data over a non-secure telephone line to data-storage banks and a Central Processing Unit (CPU) not under Agency control, an Office of Security Review of the data to be transmitted, in identifying possible sensitivity of said data, is requested.

2. Attached is a detailed description of the type of data involved and the format for its transmission. For further clarification or discussion of these details, Dr. [redacted] Chief, Assessment Branch, Psychological Services Staff, is the appropriate point of contact.

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JOHN R. TIETJEN, M. D.
Director of Medical Services

Attachment

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Executive Registry

70-1894

21 APR 1970

MEMORANDUM FOR: Deputy Director for Intelligence
Deputy Director for Plans
Deputy Director for Science and Technology
Deputy Director for Support

SUBJECT : Approvals Concerning Acquisition of ADP
Equipment and Services

1. Restraints on available resources and the need to centralize Agency consideration of plans to acquire significant ADP equipment and services require that such plans be forwarded to me for approval even if such acquisitions have already been budgeted.

2. The following criteria are to be applied in determining those ADP acquisitions which require my approval before Agency funds are committed:

a. Any computer, whether used as a stand-alone processor or as an integral element of some larger, computer-controlled system and whether used on Agency premises or elsewhere. (Small desk calculators, whether or not of electronic design, are excluded.)

b. Any upgrading of a computer (e.g., additional core, I/O devices, etc.) which results in a net increase in cost of over \$4,000 per month in rental or \$150,000 for purchase.

c. Any contract the principal purpose of which is to acquire software or other ADP services costing over \$50,000.

3. Any component planning changes of the kind described in paragraph 2 should consult freely at an early stage in the planning with the Office of Computer Services or other components where technical skills and experience can be helpful in reaching a decision.

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4. In cases requiring my consideration, answers to the following questions will normally be needed:

- a. What is the proposed acquisition and what needs and objectives are served by it?
- b. Explicitly, what benefits are expected to stem from this acquisition?
- c. What is the cost of the proposed acquisition? What costs (and savings) can be anticipated for future years as a result of this acquisition?
- d. What alternatives are available and why is the recommended action preferred?
- e. Does the proposed system change have consequences which will be of interest to or affect other components? If so, has the proposal been coordinated with the components concerned?
- f. Is the acquisition contained in your program plan and budget? (If not, explain proposed manner of budgeting.)

5. Requests for approval covering the above information, together with any additional information deemed relevant, should be addressed to the Executive Director-Comptroller through the Chairman of the Information Processing Board.

/s/ L. K. White

L. K. White
Executive Director-Comptroller